



OBESITY IN ARIZONA:

PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

Bureau of Public Health Statistics
Health Status and Vital Statistics Section

~ Leadership for a Healthy Arizona ~



Janet Napolitano, Governor
State of Arizona

Susan Gerard, Director
Arizona Department of Health Services

HEALTH STATUS AND VITAL STATISTICS SECTION
BUREAU OF PUBLIC HEALTH STATISTICS
ARIZONA DEPARTMENT OF HEALTH SERVICES
150 N. 18th Avenue, Suite 550
Phoenix, Arizona 85007-3248
Phone: 602/542-7333; FAX: 602/542-2940
www.azdhs.gov/plan

This publication can be made available in alternative format.
Please contact the Bureau of Public Health Statistics
at 602/542-7333 (voice) or call 1-800-367-8939 (TDD).

The Arizona Department of Health Services is
an Equal Employment Opportunity Agency.

*Permission to quote from or reproduce materials from this
publication is granted when due acknowledgment is made.*

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

By

Brian A. Bender, MBA,
SURVEY MANAGER

Christopher K. Mrela, Ph.D.,
ARIZONA VITAL STATISTICIAN

AUGUST 2007

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE OF CONTENTS

PURPOSE	1
METHODS AND SOURCES	1
EXECUTIVE SUMMARY	2
 FINDINGS:	
FIGURE 1 – Prevalence of Obesity by State, United States, 2006	3
FIGURE 2 – Prevalence of Obesity by Year, Arizona, 1990-2006	4
FIGURE 3 – Prevalence of Obesity by Year, Arizona and United States, 2001-2006	5
FIGURE 4 – Average Annual Prevalence of Obesity by County of Residence, Arizona, 2001-2006	6
FIGURE 5 – Prevalence of Obesity by Gender, Arizona and United States, 2006	7
FIGURE 6 – Prevalence of Obesity by Age Group, Arizona and United States, 2006	8
FIGURE 7 – Prevalence of Obesity by Education, Arizona and United States, 2006	9
FIGURE 8 – Prevalence of Obesity by Income, Arizona and United States, 2006	10
FIGURE 9 – Prevalence of Obesity by Race and Ethnicity, Arizona, 2006	11
FIGURE 10 – Prevalence of Obesity by Self-reported Health Status, Arizona, 2006	12
FIGURE 11 – Prevalence of Obesity by Diabetes Status, Arizona, 2006	13
FIGURE 12 - Inpatient Discharges with Morbid Obesity as First-Listed Diagnosis and Any Mention of Morbid Obesity on the Medical Record, Arizona Residents, 2000-2006	14
FIGURE 13 - Types of Surgical Procedures Performed in Treatment of Morbid Obesity, Arizona Residents, 2006	15
FIGURE 14 – Trends in Types of Procedures Performed in Treatment of Morbid Obesity, Arizona Residents, 200-2006	16
FIGURE 15 - Hospital Inpatient Discharges with Morbid Obesity as First-Listed Diagnosis by Payer, Arizona Residents 2006	17
FIGURE 16 - Number of Emergency Department Visits Related to Morbid Obesity, Arizona Residents, 2006	18
FIGURE 17 - Emergency Department Visits Related to Morbid Obesity by Payer. Arizona Residents, 2006	19
FIGURE 18 - Morbid Obesity as the Underlying Cause of Death, Arizona Residents, 1990-2006	20
FIGURE 19 - Morbid Obesity as the Underlying Cause of Death and Any Mention of Obesity on Death Certificates, Arizona Residents, 2000-2006	21

DATA TABLES

TABLE 1 - Emergency Department visits and Inpatient Hospitalizations with Diagnosis of Morbid Obesity (ICD-9CM code 278.01) by Gender, Age Group, and County of Residence among Arizona Residents, 2006	22
TABLE 2 - Characteristics of Inpatient Discharges with Morbid Obesity, Arizona Residents, 2000-2006	24
TABLE 3 - Morbid Obesity (ICD-9 code 278.0) as the Underlying Cause of Death, Arizona Residents, 2000-2006	25
TABLE 4 - Morbid Obesity as the Underlying Cause of Death and Any Mention of Morbid Obesity on Death Certificates, Arizona Residents, 2000-2006	27
TABLE 5 - Characteristics of Deaths from Morbid Obesity among Arizona Residents in 2006	29

Purpose

The purpose of this report is to provide information concerning the prevalence of obesity and associated statistics from vital records and the hospital discharge database.

Nationally, on average, men and women are more than 24 pounds heavier than they were in the early 1960s. Whereas during the same time period, mean height increased about 1 inch. In 1999–2002 mean weight of men 20 years and over was almost 190 pounds while among women it was around 163 pounds. Mean height for men in 1999–2002 was about 69 inches and for women about 64 inches.¹

Like no other common condition, obesity has been recently portrayed as a major cause of “morbidity and mortality in the United States”², “the most important of the new health challenges”³, a factor “lessening life expectancy markedly”⁴ and a contributor to “an increased incidence of cardiovascular disease, type 2 diabetes mellitus, hypertension, stroke, dyslipidemia, osteoarthritis, and some cancers”.⁵

Methods and Sources

Three data sources were utilized in producing this report: Arizona Behavioral Risk Factor Surveillance System (BRFSS) telephone survey, the hospital discharge database and the mortality database.

The BRFSS is a random sample telephone survey that uses disproportionate stratified sampling, random digit dialing, and a Computer Assisted Telephone Interviewing (CATI) system. A sample size of 4,700 interviews over a 12-month period was selected to achieve an acceptable confidence interval on risk factor prevalence estimates of the Arizona adult population.

The collected data is compiled and weighted by the CDC. Weighted counts were based on the Arizona population to accurately reflect the population demographics. The weighting factor considered the number of adults and telephone lines in the household, cluster size, stratum size, and age/race/sex distribution of the general population.

All analyses presented are based on cell counts of at least eight cases. The demographic information that was collected and presented in these results includes sex, age, education, household income, race, and ethnicity.

The hospital discharge database contains two types of records: inpatient hospitalizations and emergency room visits. An inpatient discharge occurs when a person who was admitted to a hospital leaves that hospital. A person who has been hospitalized more than once in a given calendar year will be counted multiple times as a discharge and included more than once in the hospital inpatient discharge data set; thus, the numbers we report here are for discharges, not persons.

Up to nine diagnoses are coded for each discharge. Diagnostic groupings and code numbers are based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).

The emergency department (ED) and the inpatient hospitalization data are mutually exclusive. The ED data include only those who were not admitted as inpatients. All inpatient discharges and ED visits are those of the residents of Arizona.

Information on deaths is compiled from the original documents filed with the Arizona Department of Health Services', Office of Vital Records and from transcripts of original death certificates filed in other states but affecting Arizona residents.

For the purpose of mortality statistics, every death is attributed to one underlying condition or underlying cause of death. The underlying cause is defined as the disease or injury that initiated the chain of events leading directly to death. It is selected from up to 20 causes and conditions entered by the physician on the death certificate. The totality of all these conditions is known as multiple cause of death. Since 2000, the causes of death are classified by the Tenth Revision of the International Classification of Diseases (ICD-10), replacing the Ninth Revision used during 1979-1999. The multiple cause-of-death data for Arizona are not available prior to 2000.

Executive Summary

Arizona Behavioral Risk Factor Survey

- In 2006, with the prevalence of obesity rate of 22.9 percent, Arizona ranked 41st among the states.
- Over the last 15 years the estimated prevalence of obesity in Arizona's adult population has more than doubled.
- Ten counties exceeded the average annual statewide obesity rate of 19.5 percent in 2001-2006.
- Both nationally and in Arizona, respondents who are 55-64 years of age were more likely to be obese than any other age group.
- From 2005 to 2006, the largest increase in prevalence of obesity occurred among those with less than a high school education (53.8 percent).
- Arizona respondents with incomes less than \$15,000 were most likely to be obese.
- The prevalence of obesity was greater among Non-Whites than Whites. Hispanics were more likely to be obese than Non-Hispanics.
- Arizonans reporting poor health were 2.7 times more likely to be obese than those who reported their health to be excellent.
- People with diabetes were 2.4 times more likely to be obese than those without the disease.

Arizona Hospital Inpatients

- In 2006 there were 1,635 inpatients with morbid obesity as the first listed diagnosis. Most of these were admitted for bariatric surgery.

- The number of *gastric bypass* surgeries, once the most common bariatric procedure, declined from a high of 2,123 in 2003 to only 40 in 2006.
- There were 12,182 patients in 2006 who had morbid obesity listed as one of their diagnoses. This is a 175% increase from the year 2000.
- Fifty-nine percent of the bariatric surgeries in 2006 were paid for with private insurance.
- The gross charges for these surgeries in 2006 totaled \$62.9 million.
- The gross charges for all inpatients with a mention of morbid obesity in 2006 exceeded \$370 million.

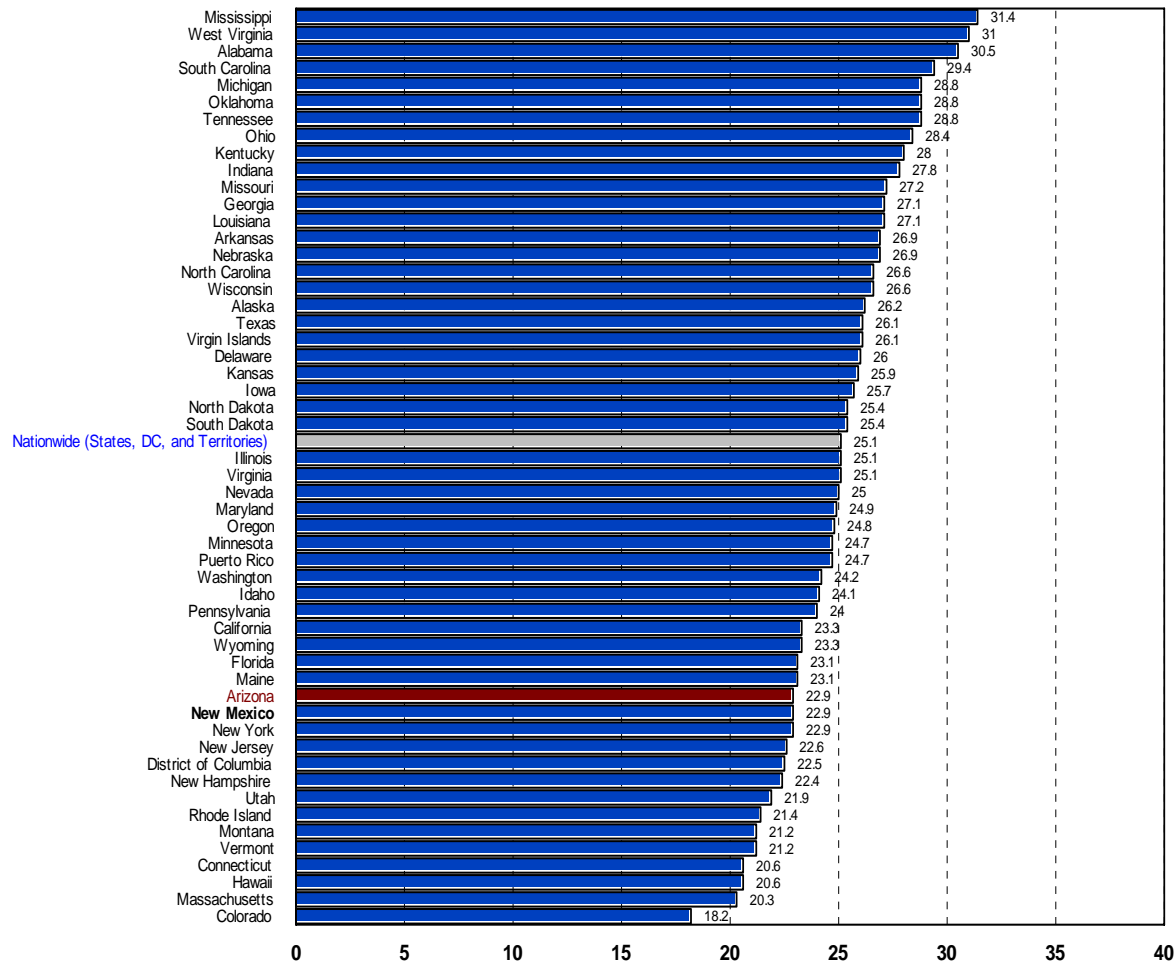
Emergency Department Visits

- In 2006, there were 2,039 visits to emergency departments in Arizona with a listed diagnosis of morbid obesity.
- Females made 2.2 times as many visits with a diagnosis of morbid obesity as males.
- AHCCCS was the primary payer for visits with morbid obesity as the diagnosis, 39.0% of the visits.
- The total gross charges for emergency department visits in Arizona with a listed diagnosis of morbid obesity was almost \$5 million in 2006.

Mortality

- There were 79 deaths in 2006 where morbid obesity was the underlying cause. This is compared to only 14 in 1990.
- In addition to 79 deaths in 2006 that had morbid obesity assigned as the underlying cause, another 213 deaths had morbid obesity assigned as the "other than" underlying cause.

Figure 1
Prevalence of Obesity by State*, United States, 2006



*Including the District of Columbia and the Territories.

BRFSS respondents are asked to provide their height and weight. This information is used to calculate body mass index (BMI). BMI is calculated using the following formula: weight in kilograms divided by height in meters squared (Kg/M^2) or (pounds * 0.454) ÷ (inches * 0.0254)². A BMI of 30.0 or more is considered obese. In the BRFSS, the BMI computation formula is applied to self-reported data rather than actual physical measurements which are used in the National Health and Nutrition Examination Survey (NHANES).

In 2006, with an obesity rate of 22.9 percent, Arizona ranked 41st among the states (including the District of Columbia and the Territories). Mississippi had the highest rate of obesity (31.4 percent) followed by West Virginia, Alabama and South Carolina (**Figure 1**). The residents of Colorado had the lowest (18.2 percent) prevalence of obesity.

In ten states the obesity rates were at least 10 percent greater (prevalence of 27.6 percent or more) than the nationwide average of 25.1 percent. In six states (Montana, Vermont, Connecticut, Hawaii, Massachusetts and Colorado) the obesity rates were at least 15 percent lower (prevalence of 21.4 percent or less) than the nationwide average.

The estimated prevalence of obesity in Arizona (based on BMI computed from self-reported weight and height) more than doubled from 10.8 percent in 1990 to 22.9 percent in 2006 (**Figure 2**).

The target for Healthy People 2010 is to reduce the incidence of obesity of persons 20 years and older with health insurance to less than 15 percent.⁶

Figure 2
Prevalence of Obesity by Year, Arizona,
1990-2006

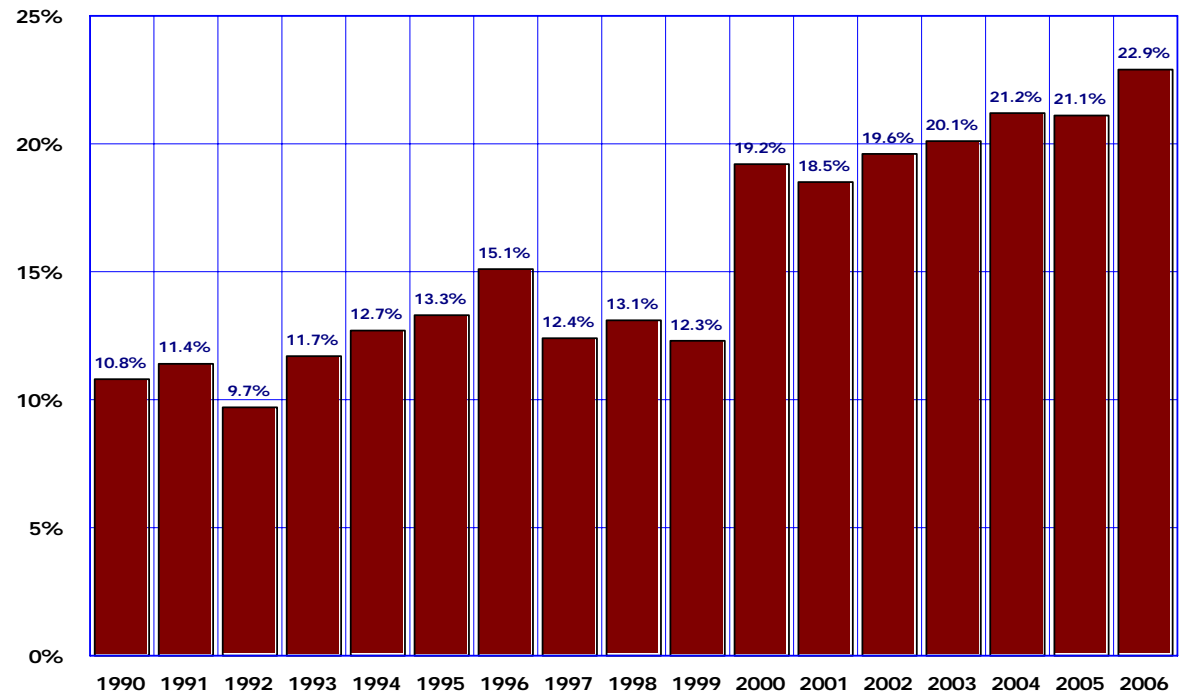
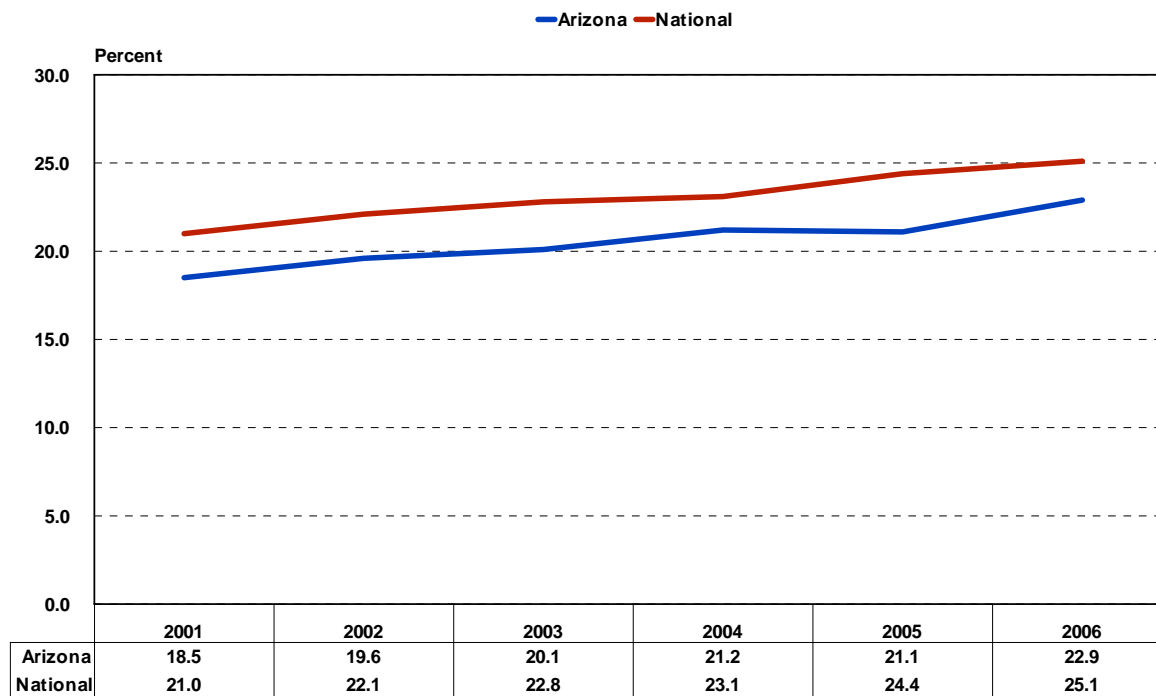
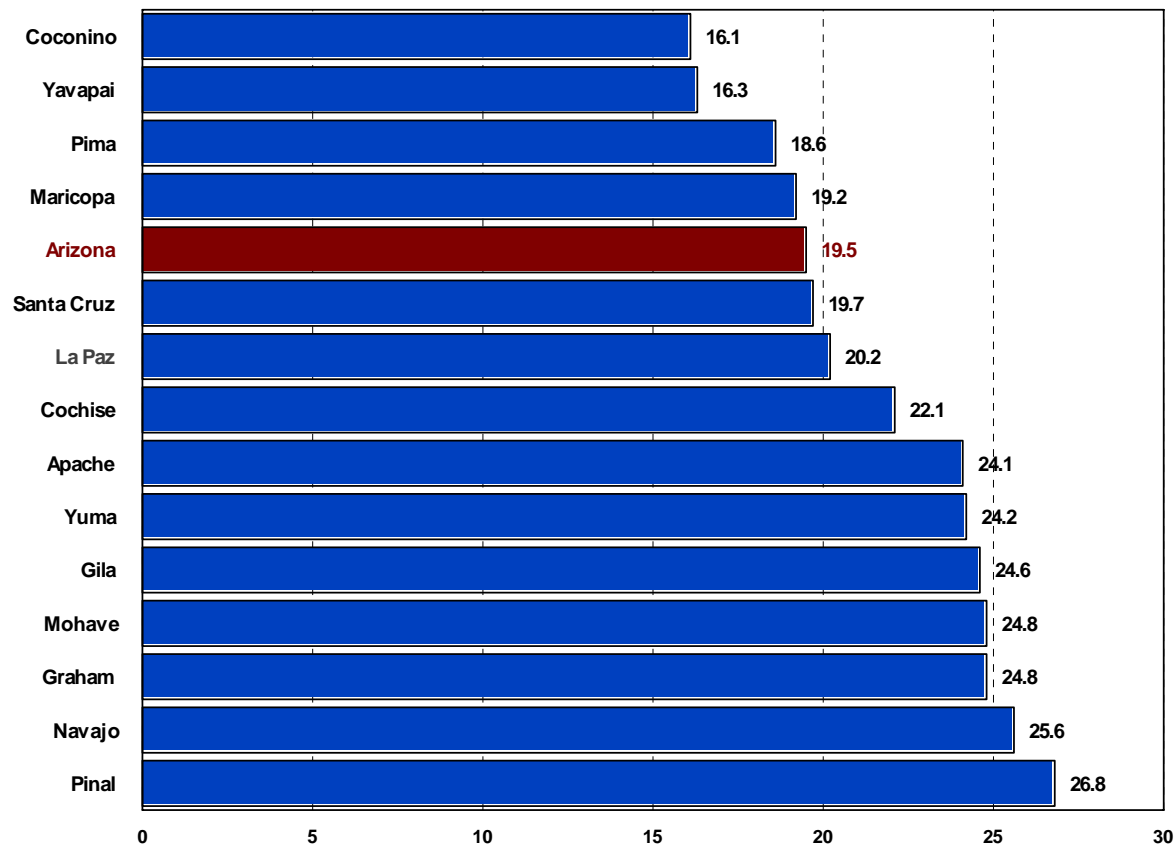


Figure 3
Prevalence of Obesity by Year, Arizona and United States, 2001-2006



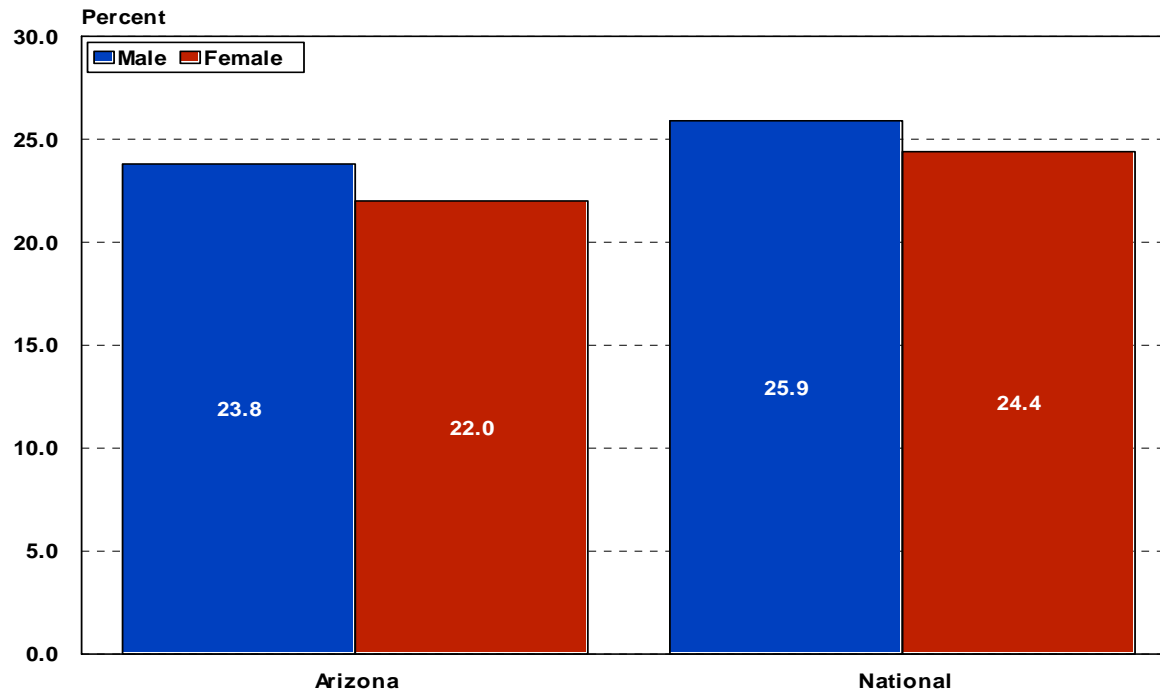
The rates of obesity for both Arizona and the nation have been increasing during the 2001 – 2006 period. In each year from 2001 to 2006, the prevalence rates of obesity were lower in Arizona compared to the nation (**Figure 3**).

Figure 4
Average Annual Prevalence of Obesity by County of Residence,
Arizona, 2001-2006



Prevalence of obesity varies considerably by the county of residence in Arizona (**Figure 4**). In 2001-2006, the obesity rates ranged from 16.1 percent in Coconino County to 26.8 percent in Pinal County. Including Pinal, ten counties exceeded the average annual statewide obesity rate of 19.5 percent in 2001-2006.

Figure 5
Prevalence of Obesity by Gender, Arizona and United States, 2006



Arizona Obesity Prevalence By Gender 2002-2006					
	2002	2003	2004	2005	2006
Male	23.0	22.1	22.2	21.6	23.8
Female	16.3	18.1	20.1	20.6	22.0

In 2006, as in prior years, the prevalence of obesity was greater among males (23.8 percent) than females (22.0 percent, **Figure 5**). Nationally, in 2006, the percentages for males and females were 25.9 percent and 24.4 percent respectively.

The following sociodemographic sub-groups were most likely to be obese:

Males:

Age: 55 – 64 years old, 36.2 percent.

Marital Status: Separated, 35.5 percent.

Education: Less than a high school, 26.9 percent.

Income: \$15,000 to \$24,999, 31.6 percent.

Race: Non-White, 23.9 percent.

Ethnicity: Non-Hispanic, 24.5 percent.

Females:

Age: 45 – 54 years old, 31.2 percent.

Marital Status: Separated, 46.1 percent.

Education: Less than a high school, 33.6 percent.

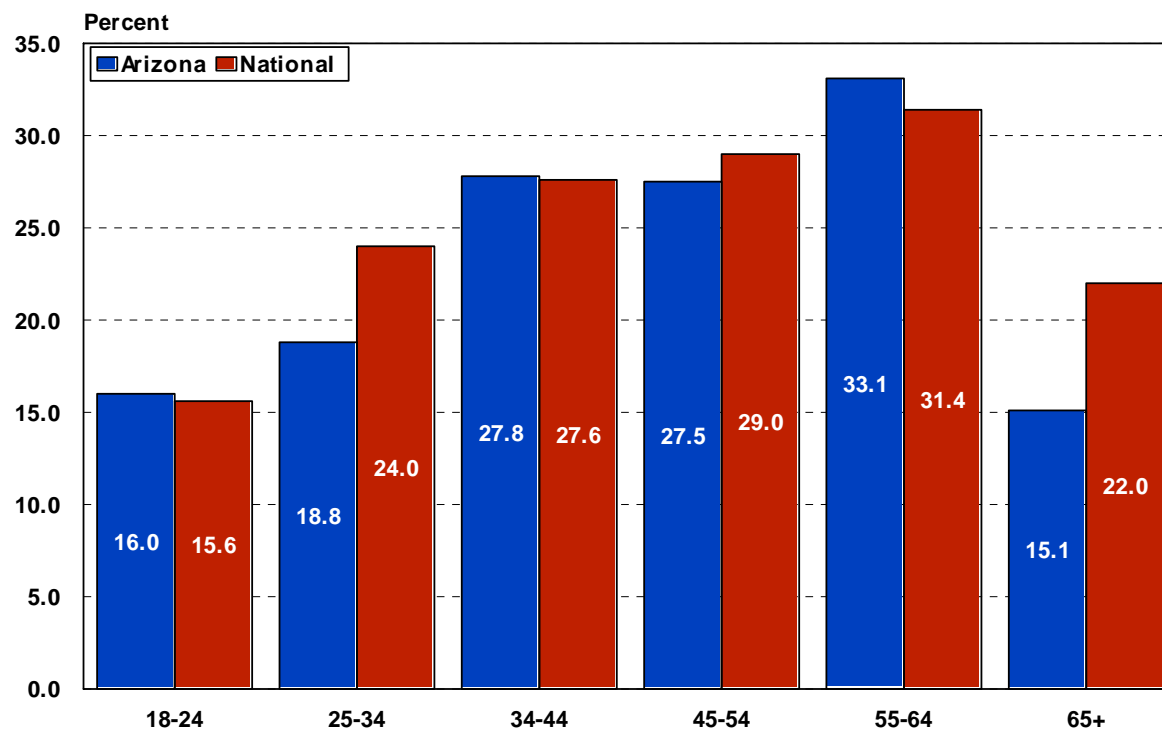
Income: Less than \$15,000, 35.1 percent.

Race: Non-White, 32.1 percent.

Ethnicity: Hispanic, 32.1 percent.

In Arizona, males experienced a slight increase in obesity prevalence from 23.0 percent in 2002 to 23.8 percent in 2006. The prevalence of obesity also increased for females from 16.3 percent in 2002 to 22.0 percent in 2006. The increase in the prevalence of obesity was 10 times greater for females than males (35 and 3.5 percent respectively).

Figure 6
Prevalence of Obesity by Age Group, Arizona and United States, 2006

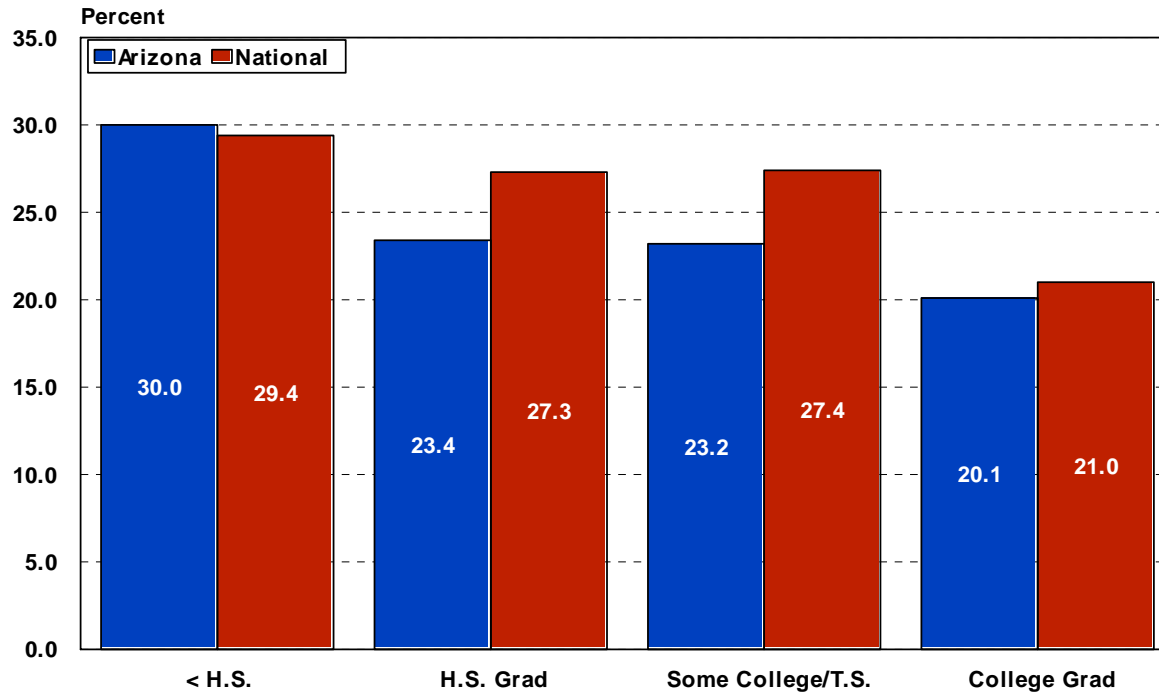


Those least likely to be obese are persons 65+ years of age. Both nationally and in Arizona, respondents who are 55-64 years of age were more likely to be obese than any other age group (**Figure 6**). One-half of the age specific rates of obesity were higher nationally than in Arizona.

Between 2002 and 2006, changes in the age-specific prevalence of obesity in Arizona were not consistent. From 2005 to 2006, the rate of obesity decreased for the 65+ age group, but the prevalence rates increased for all other age groups.

Arizona Obesity Prevalence By Age 2002-2006					
	2002	2003	2004	2005	2006
18-24	9.5	12.2	15.8	12.0	16.0
25-34	19.2	21.6	22.0	17.8	18.8
35-44	22.7	20.6	21.8	24.5	27.8
45-54	23.2	23.6	25.5	26.8	27.5
55-64	28.2	22.7	23.7	24.3	33.1
65+	14.7	18.6	17.8	20.0	15.1

Figure 7
Prevalence of Obesity by Education, Arizona and United States, 2006

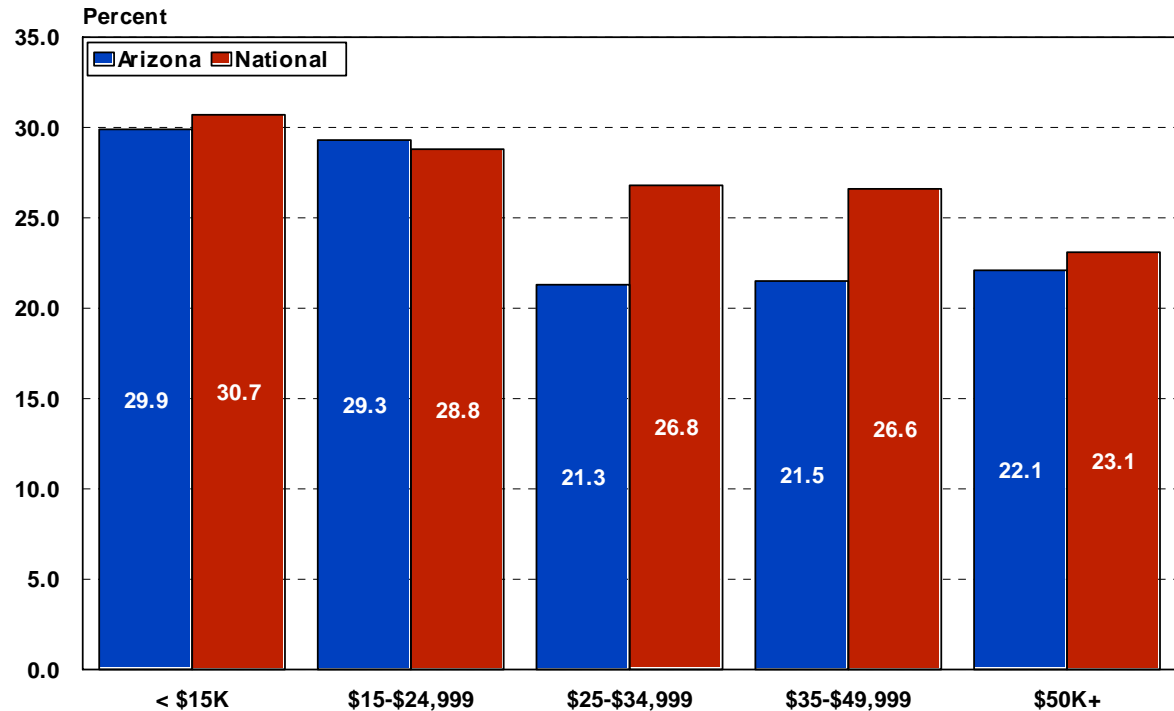


Arizonans with less than a high school education were most likely to be obese (30.0 percent), followed by those with mid-level education (23.4 percent, **Figure 7**). Those with a college education had the lowest prevalence of obesity (20.1 percent). Nationally, obesity was inversely related to education and the prevalence of obesity was higher for each education level than in Arizona.

Obesity prevalence increased for all education levels except those with some college or technical school. From 2005 to 2006, the largest increase in education-specific prevalence of obesity occurred among those with less than a high school education (53.8 percent).

Arizona Obesity Prevalence By Education 2002-2006					
	2002	2003	2004	2005	2006
< H.S.	21.8	29.0	21.2	19.5	30.0
High School	20.2	23.7	23.5	21.5	23.4
Some College/Tech School	19.5	19.0	24.0	24.8	23.2
College Grad	18.7	15.8	16.7	17.7	20.1

Figure 8
Prevalence of Obesity by Income, Arizona and United States, 2006

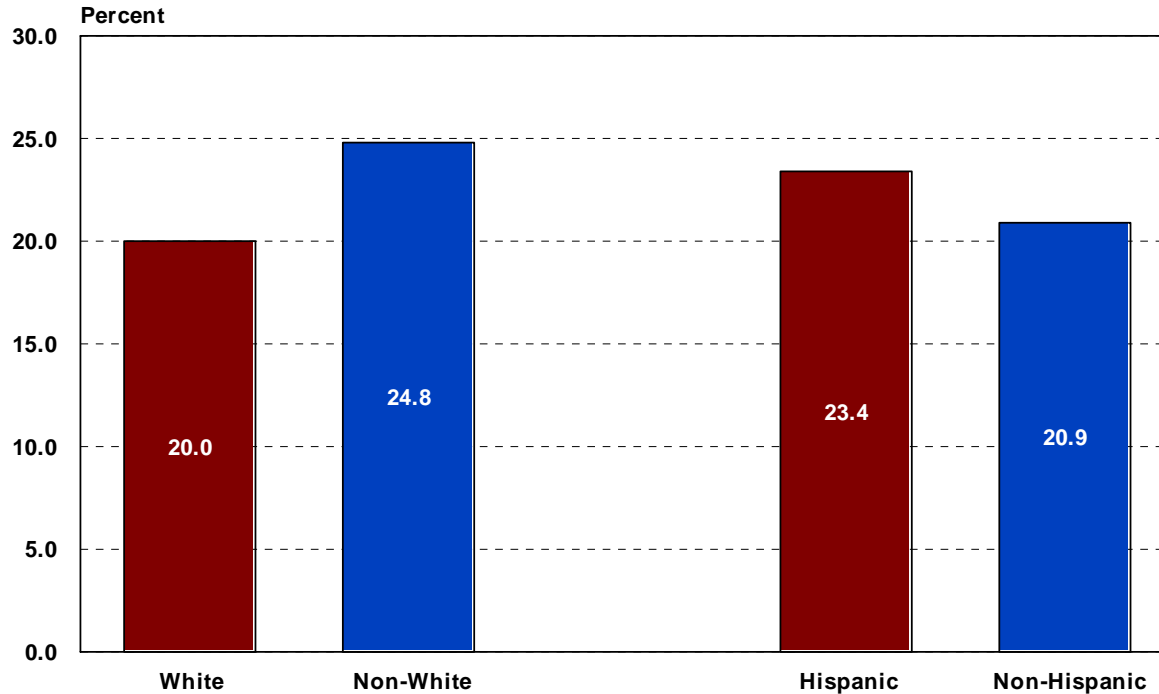


Arizona respondents with incomes less than \$15,000 were most likely to be obese (29.9 percent), followed by those earning \$15,000 to \$24,999 (29.3 percent, **Figure 8**). Those with incomes of \$25,000 to \$34,999 were least likely to be obese (21.3 percent). Nationally, obesity rates in every income level were greater than in Arizona except those earning \$15,000 to \$24,999.

From 2005 to 2006, the prevalence of obesity remained essentially unchanged for Arizonans with incomes of \$25,000 to less than \$35,000, but it increased for the remaining income groups.

Arizona Obesity Prevalence By Income 2002-2006					
	2002	2003	2004	2005	2006
<\$15K	21.7	26.0	19.4	19.9	29.9
\$15K-<\$25K	24.3	22.4	21.8	24.7	29.3
\$25K-<\$35K	22.8	17.6	21.7	21.7	21.3
\$35K-<\$50K	17.8	19.8	26.5	20.3	21.5
\$50K+	19.8	19.9	18.4	22.5	22.1

Figure 9
Prevalence of Obesity by Race and Ethnicity, Arizona, 2006



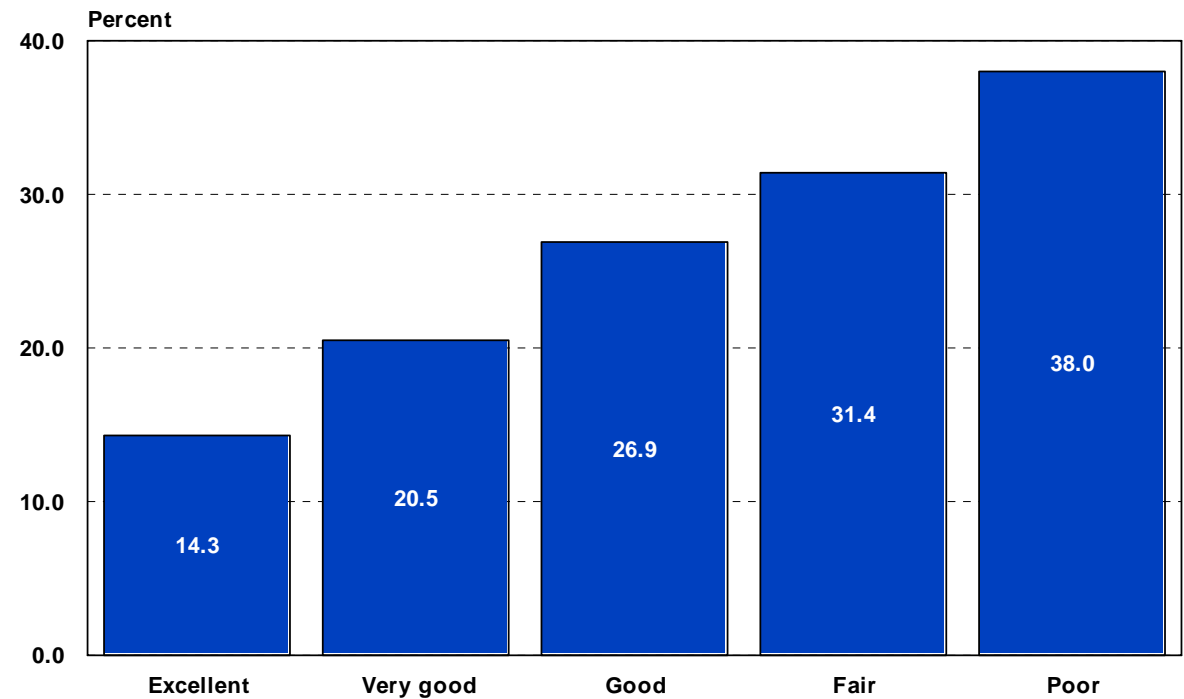
In 2006, the prevalence of obesity was greater among Non-Whites (24.8 percent) than Whites (20.0 percent). Hispanics (23.4 percent) were more likely to be obese than Non-Hispanics (20.9 percent, **Figure 9**).

Between 2002 and 2006, the rate of obesity increased by 7.0 percent among Whites. It has also increased by 7.2 percent among non-Hispanics. The temporal trends for Non-Whites and Hispanics were less consistent.

Compared to 2004, the rates of obesity among non-Whites and Hispanics were lower both in 2005 and 2006.

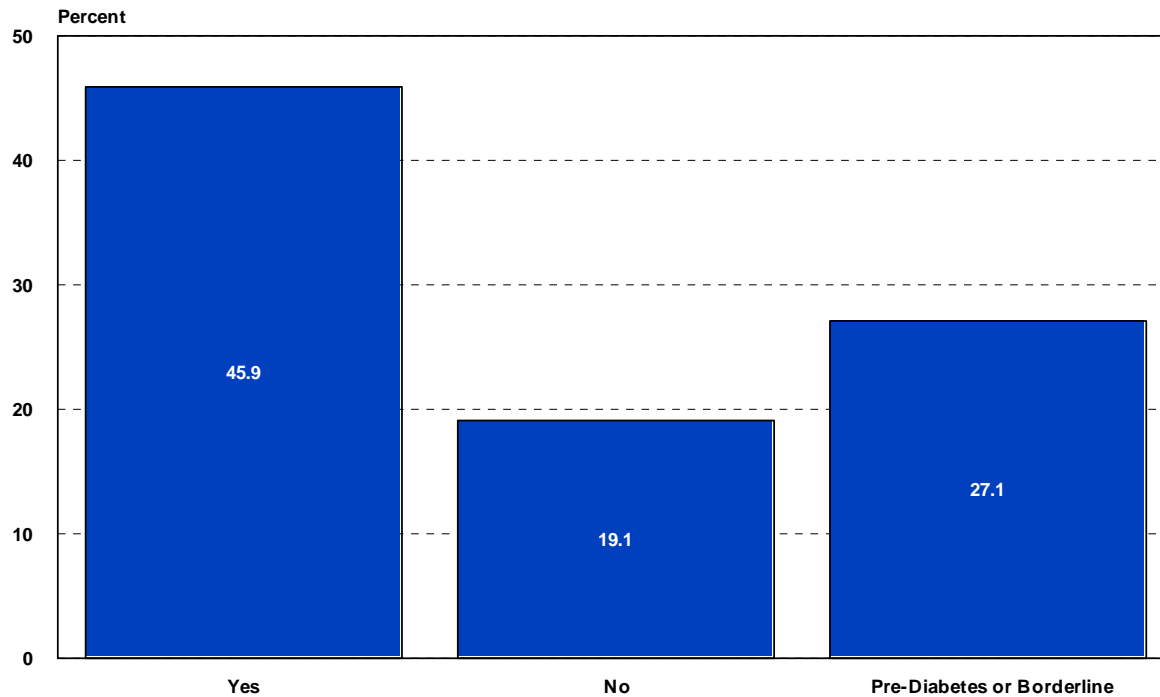
Race		Ethnicity			
Arizona Obesity Prevalence By Race and Ethnicity, 2002-2006					
	2002	2003	2004	2005	2006
Race					
White	18.7	18.6	18.9	19.6	20.0
Non-White	22.1	24.2	26.4	24.2	24.8
Ethnicity					
Hispanic	19.5	24.4	26.7	23.0	23.4
Non-Hispanic	19.5	19.2	19.7	20.5	20.9

Figure 10
Prevalence of Obesity by Self-Reported General Health Status, Arizona, 2006



The self-assessed health status is inversely related to the prevalence of obesity. The higher the rate of obesity, the worse is the self-assessed health status. Arizonans reporting that their health was poor were 2.7 times more likely to be obese than those who reported their health status as excellent. (38.0 percent vs. 14.3 percent respectively, **Figure 10**).

Figure 11
Prevalence of Obesity by Diabetes Status, Arizona, 2006



In 2006, 8.5 percent of all respondents reported having been told by a doctor that they had diabetes. Those with diabetes were 2.4 times more likely to be obese (45.9 percent) than those without the disease (19.1 percent, **Figure 11**).

In 2006, **morbid obesity** (ICD-9-CM code 278.01) was the first-listed diagnosis (the first one listed on the discharge summary of the medical record) for 1,635 inpatient hospitalizations (**Figure 12**), 2.7 times the number reported for 2000. After reaching the recent peak in 2003, the number of inpatient hospitalizations for morbid obesity as first-listed diagnosis declined for the third consecutive year.

However, when we count all entries of the diagnostic code for morbid obesity within the nine diagnostic fields, there has been a continuous increase in the number of hospitalizations related to morbid obesity: from 4,431 in 2000 to 12,182 in 2006 (**Figure 12**).

Females accounted for 1,274 (77.9 percent) of the 1,635 inpatient hospitalizations for morbid obesity as first-listed diagnosis (**Table 1**). In 2006, the majority of inpatient hospitalizations were middle-aged adults 45-64 years (48.2 percent) followed closely by young-adults 20-44 years old (48.1 percent). Children or adolescents younger than 20 years of age accounted for 0.8 percent (13 cases) of all inpatient hospitalizations for first-listed morbid obesity. In addition, there were 47 inpatient hospitalizations among senior Arizonans 65 years old or older in 2006.

Figure 12
Inpatient Discharges with Morbid Obesity as First-Listed Diagnosis and Any Mention of Morbid Obesity on the Medical Record, Arizona Residents, 2000-2006

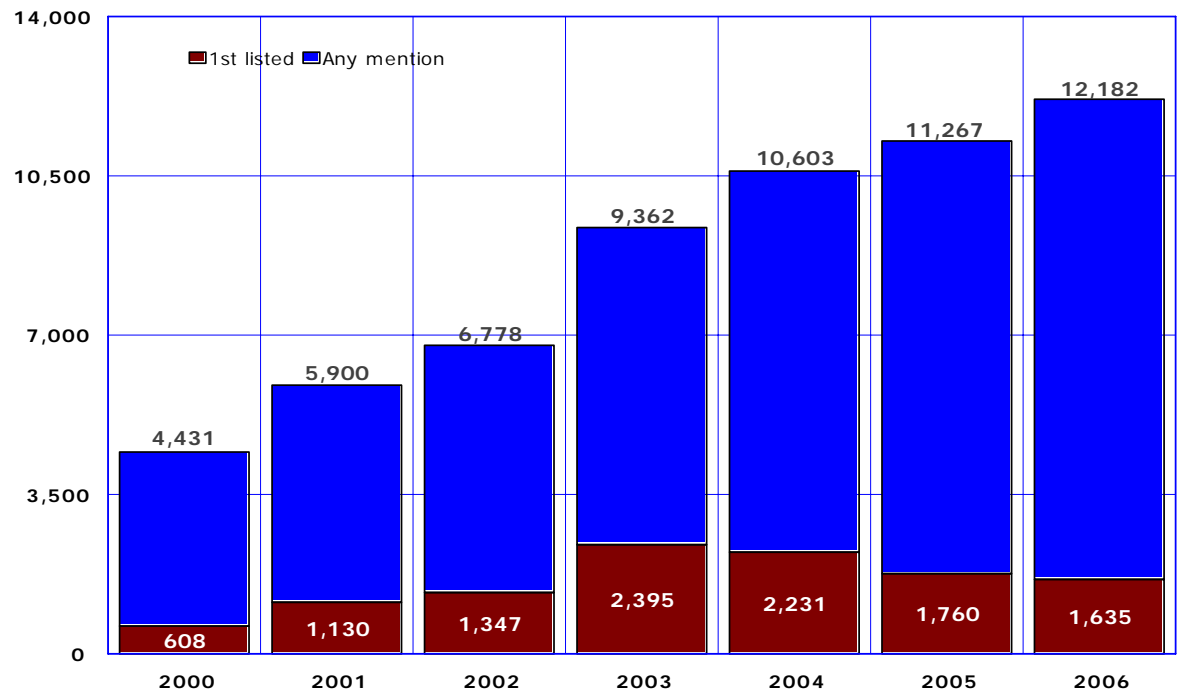
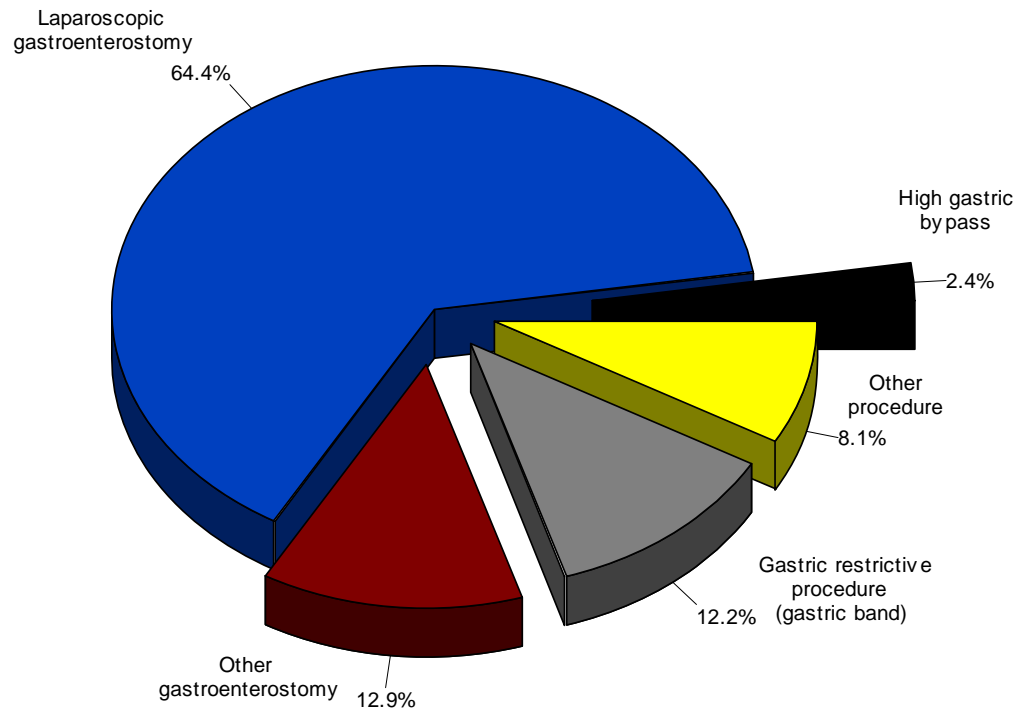


Figure 13
Types of Surgical Procedures Performed in Treatment of Morbid Obesity, Arizona Residents, 2006

N = 1,635 (ICD-9-CM code 278.01 for morbid obesity used as first-listed diagnosis)



Bariatrics is a branch of medicine that deals with the surgical treatment of obesity. Bariatric (or obesity) surgery has seen a rather dramatic increase in its popularity (**Table 2**).

A typical candidate for gastrointestinal surgery has a body mass index (BMI) of 40 or more – about 100 pounds overweight for men and 80 pounds for women. Bariatric surgery may also be considered for someone whose BMI is between 35 and 39.9 and who has a serious obesity-related health problem (such as type 2 diabetes, heart disease or severe sleep apnea).

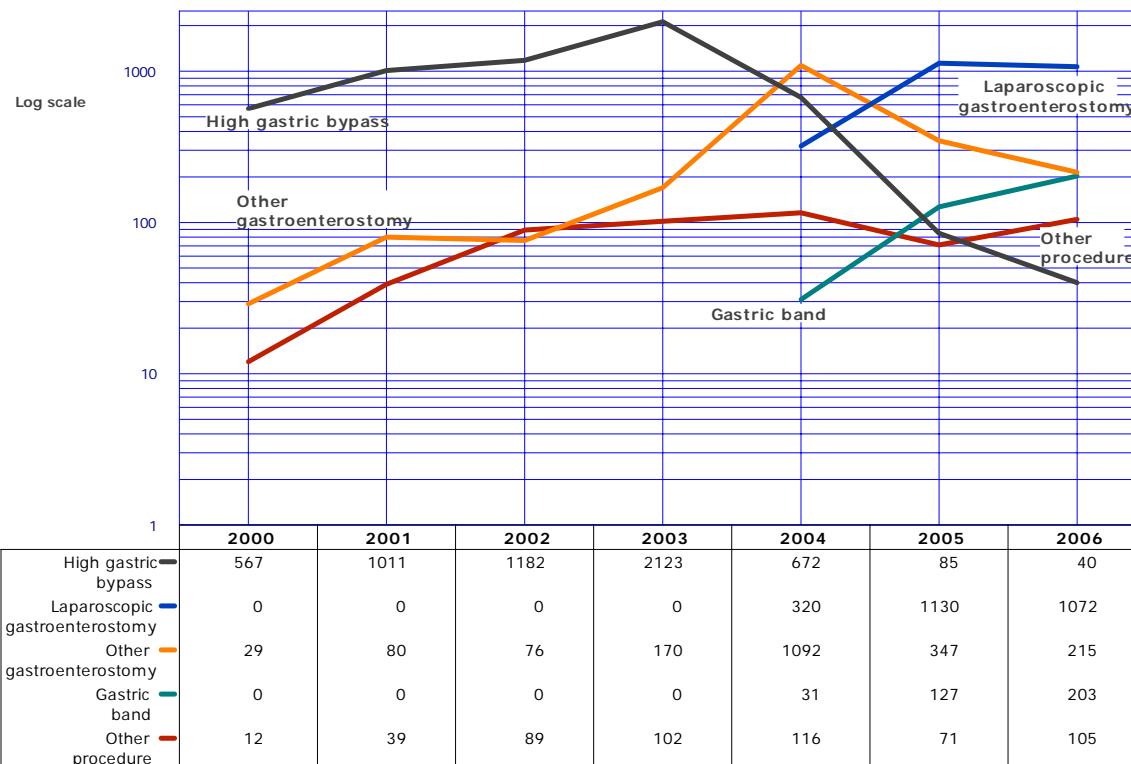
In 2006, *laparoscopic gastroenterostomy* accounted for 64.4 percent of all bariatric surgeries performed in Arizona (**Figure 13**). The surgeon makes one or more small incisions through which surgical instruments are passed, eliminating the need for a large incision.

Gastric restrictive procedure accounted for 12.2 percent of obesity surgeries in 2006. In this procedure, a hollow band made of silicone rubber is placed around the stomach near its upper end. The band is then inflated with a salt solution. It can be tightened or loosened to change the size of the passage into the rest of the stomach.

Gastric bypass surgery accounted for 2.4 percent of obesity surgeries in 2006. In this procedure, the surgeon creates a small stomach pouch to restrict food intake. Next, a Y-shaped section of the small intestine is attached to the pouch to allow food to bypass the lower stomach.

In 2006, other gastrointestinal procedures accounted for about one in twelve of all bariatric surgeries performed in Arizona hospitals. Four of the 1,635 patients died in 2006 following a gastrointestinal surgery.

Figure 14
Trends in Types of Procedures Performed in Treatment of Morbid Obesity*,
Arizona Residents, 2000-2006

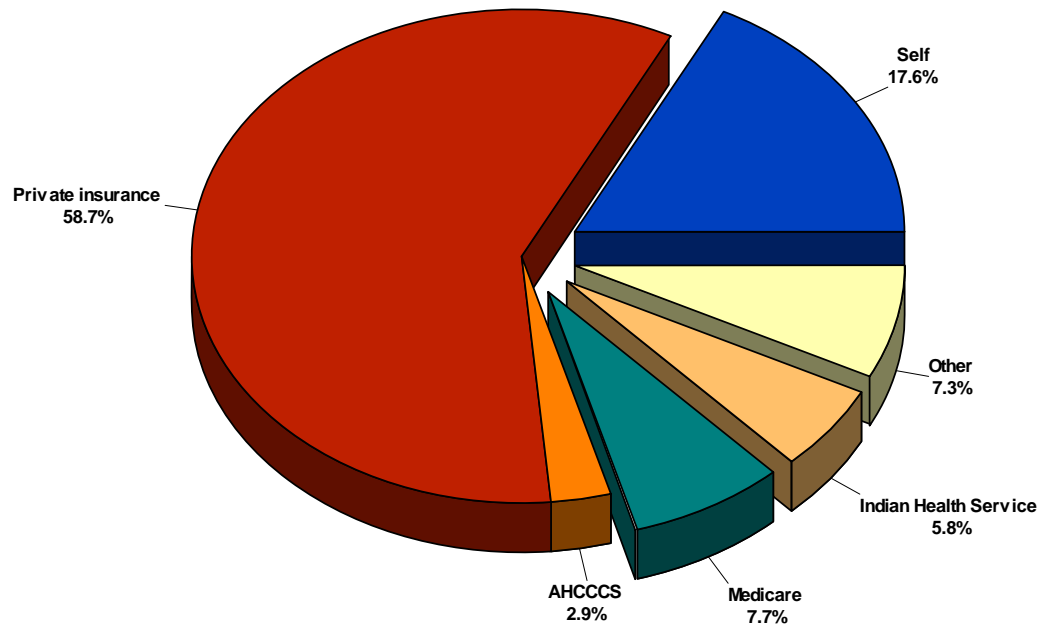


The number of *gastric bypass* surgeries, once the most common bariatric procedure, declined from a recent high of 2,123 in 2003 to only 40 in 2006 (**Figure 14**). Not a single *laparoscopic gastroenterostomy* was reported in Arizona prior to 2004. In 2005, there were 1,130 procedures performed, followed by 1,072 in 2006. The number of *gastric restrictive (gastric band) procedures* was non-existent prior to 2004. The number of 203 *gastric band* procedures performed in 2006 was 6.5 times greater than the 31 procedures performed in 2004. Other gastroenterostomy declined from a recent peak of 1,092 procedures in 2004 to 215 procedures in 2006.

*Among Arizonans who were admitted as inpatients with first-listed diagnosis of morbid obesity (ICD-9-CM code 278.01).

Figure 15
Hospital Inpatient Discharges with Morbid Obesity (ICD-9-CM 278.01) as First-Listed
Diagnosis by Payer, Arizona Residents, 2006

N = 1,635 discharges in 2006



*Indemnity, HMO, PPO.

**The Arizona Health Care Cost Containment System is the State's Medicaid Program.

Private insurance (traditional indemnity, HMO or PPO) was recorded for 58.7 percent of inpatient discharges with morbid obesity as first-listed diagnosis. Self-pay (17.6 percent) was the second expected source of payment for the charges associated with hospital stay. It was followed by Medicare (7.7 percent) and all other sources of payment combined (7.3 percent).

The total gross charges incurred in 2006 by the 1,635 inpatient hospitalizations for **morbid obesity as first-listed diagnosis** exceeded 62 million dollars (\$62,886,728 or \$38,463 per discharge).

In 2006, the highest per capita charges were those for AHCCCS discharges (\$50,150), followed by Medicare (\$44,181). Per capita hospital charges for inpatients who had private insurance coverage were around the average at \$38,493. The per capita charges for self-paying inpatients were below the average (\$33,820).

The total gross charges incurred in 2006 by the 12,182 inpatient discharges from Arizona short-stay hospitals with **any mention of morbid obesity** (including the 1,635 first listed diagnoses) exceeded 370 million dollars (\$373,108,908). It is important to note, that the above amounts do not tell us anything about the actual payments received by hospitals.

During 2006, 2,039 visits made by Arizona residents to hospital emergency departments were related to morbid obesity. Only in 16 cases morbid obesity was recorded as a first-listed diagnosis. Morbid obesity diagnosis was substantially more frequently present as 2nd-9th listed on the medical record than it was first-listed (**Figure 16**). For 2,023 cases where morbid obesity was not reported as first-listed diagnosis, the chief complaints or reasons for a visit to the emergency room were injuries (330), back pain and other spinal/musculoskeletal disorders (227), sprains and strains (161), chest pain (170), cellulites and abscess (94), all of which may be related to obesity. These five leading patient complaints accounted for 48.5 percent of all visits related to morbid obesity.

Females made 2.2 times as many emergency department visits related to morbid obesity than males (1,398 vs. 641, **Table 1**). The majority of morbid obesity-related emergency room visits were made by young adults 20-44 years old (1,146, or 56.2 percent of all visits) followed by middle-aged adults (655, 32.1 percent) and elderly 65 years or older (146 or 7.2 percent). There were 57 emergency room visits related to morbid obesity made by adolescents 15-19 years old, and 35 visits made by children 1-14 years of age.

Figure 16
Number of Emergency Department Visits Related to Morbid Obesity, Arizona Residents, 2006

Total number of ED visits related to morbid obesity = 2,039

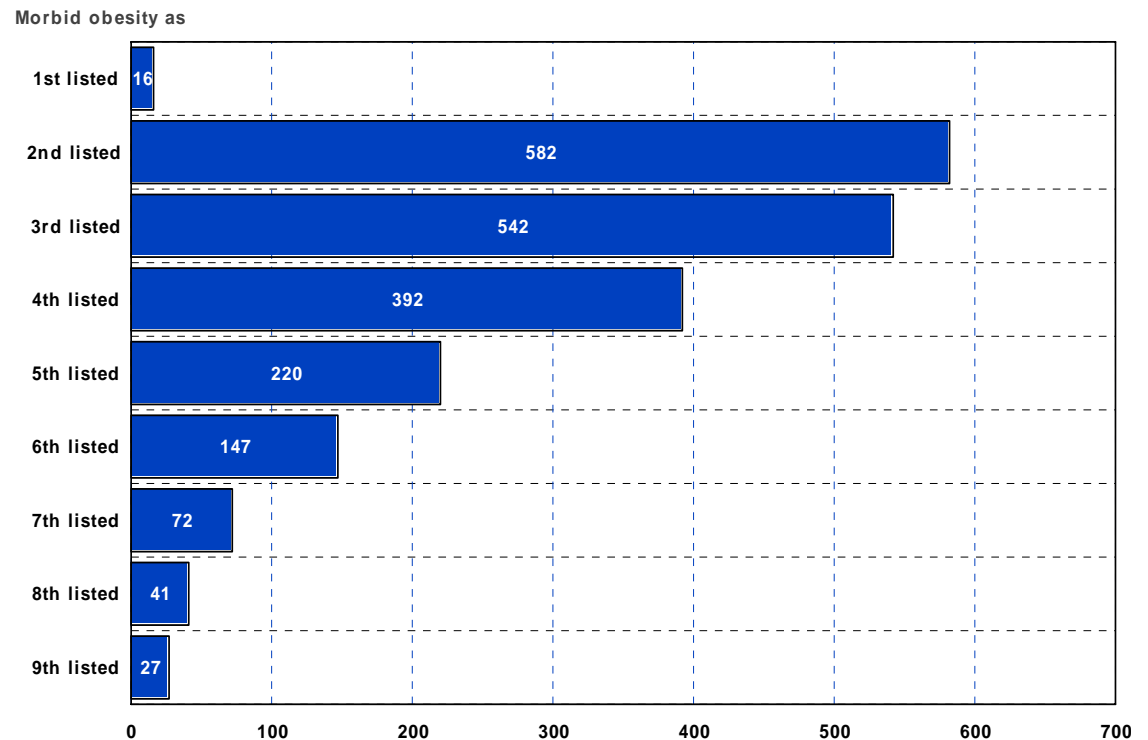
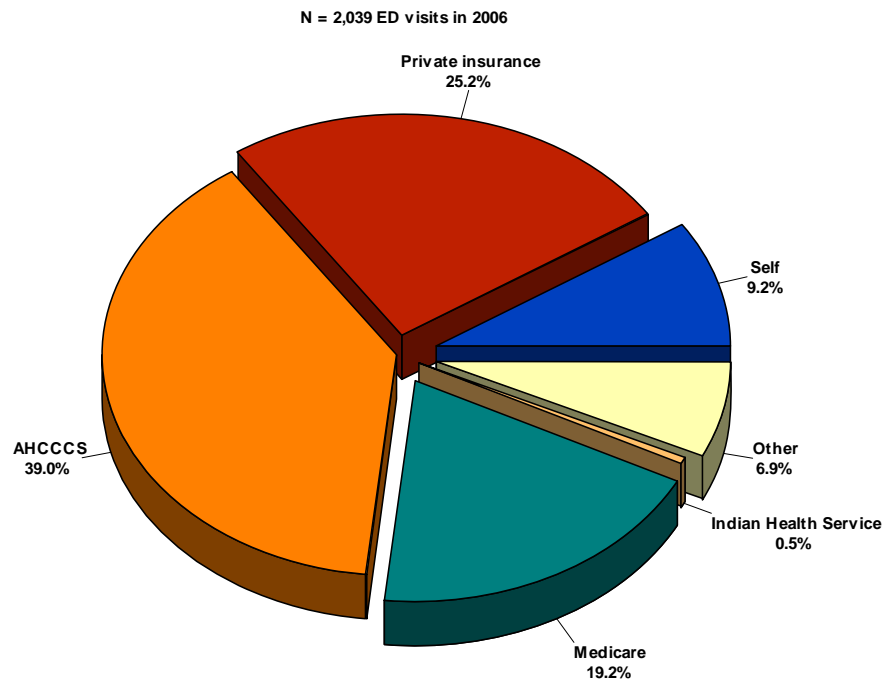


Figure 17
Emergency Department Visits Related to Morbid Obesity
(ICD-9-CM 278.01) by Payer, Arizona Residents, 2006



The Arizona Health Care Cost Containment System (AHCCCS) paid for 39.0 percent of emergency room visits related to morbid obesity. Private insurance was the second expected source of payment (25.2 percent). It was followed by Medicare (19.2 percent) and self-pay (9.2 percent; **Figure 17**).

The total gross charges incurred in 2006 by the 2,039 patients seen in the emergency departments in relation to **morbid obesity** amounted to 5 million dollars (\$4,954,413 or \$2,430 per visit).

The total gross charges incurred in 2006 by the 12,182 inpatient discharges from Arizona short-stay hospitals and 2,039 ED patients with **any mention of morbid obesity** were \$378,063,321. Again, this combined amount was charged by but not necessarily received by hospitals.

Figure 18
Morbid Obesity as the Underlying Cause of Death,
Arizona Residents, 1990-2006

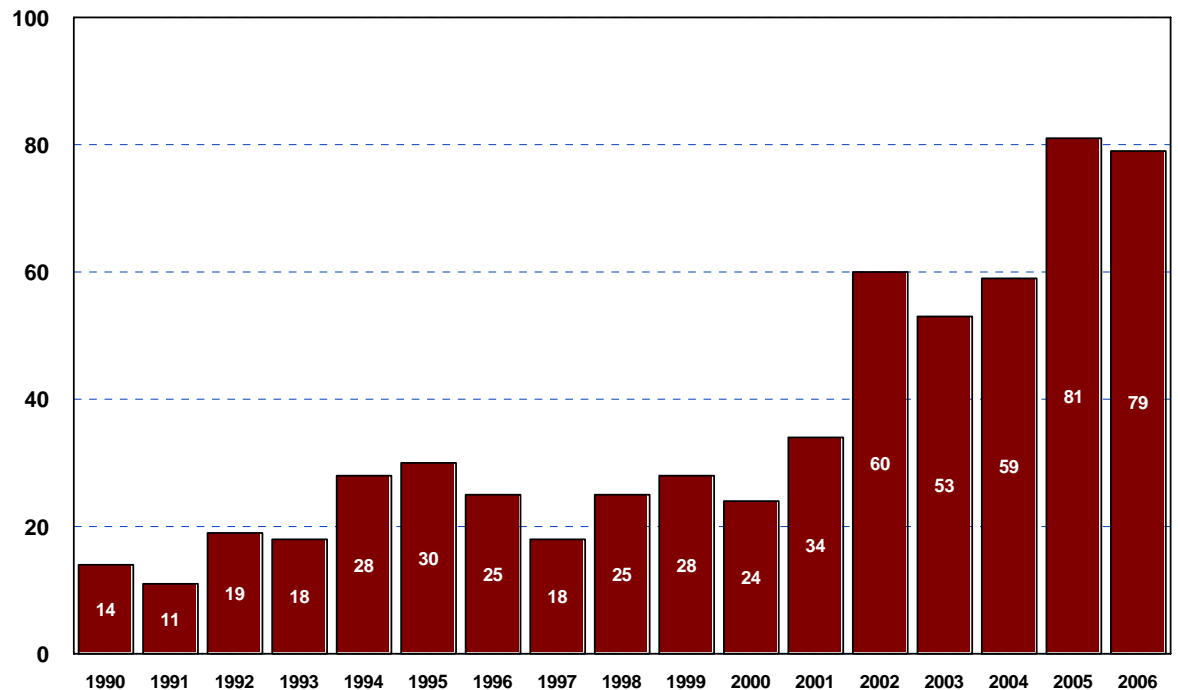
For the purpose of mortality statistics, every death is attributed to one underlying condition or underlying cause of death. The underlying cause is defined as the disease or injury that initiated the chain of events leading directly to death.

In 2006, among the 45,415 deaths of Arizona residents, 79 deaths (0.2 percent) had morbid obesity assigned as the underlying cause (**Figure 18**).

One out of two Arizonans who died from morbid obesity was younger than 51 years old. Compared to the median age at death from all causes among Arizonans in 2006 (76 years) those who died from morbid obesity were on average 25 years younger.

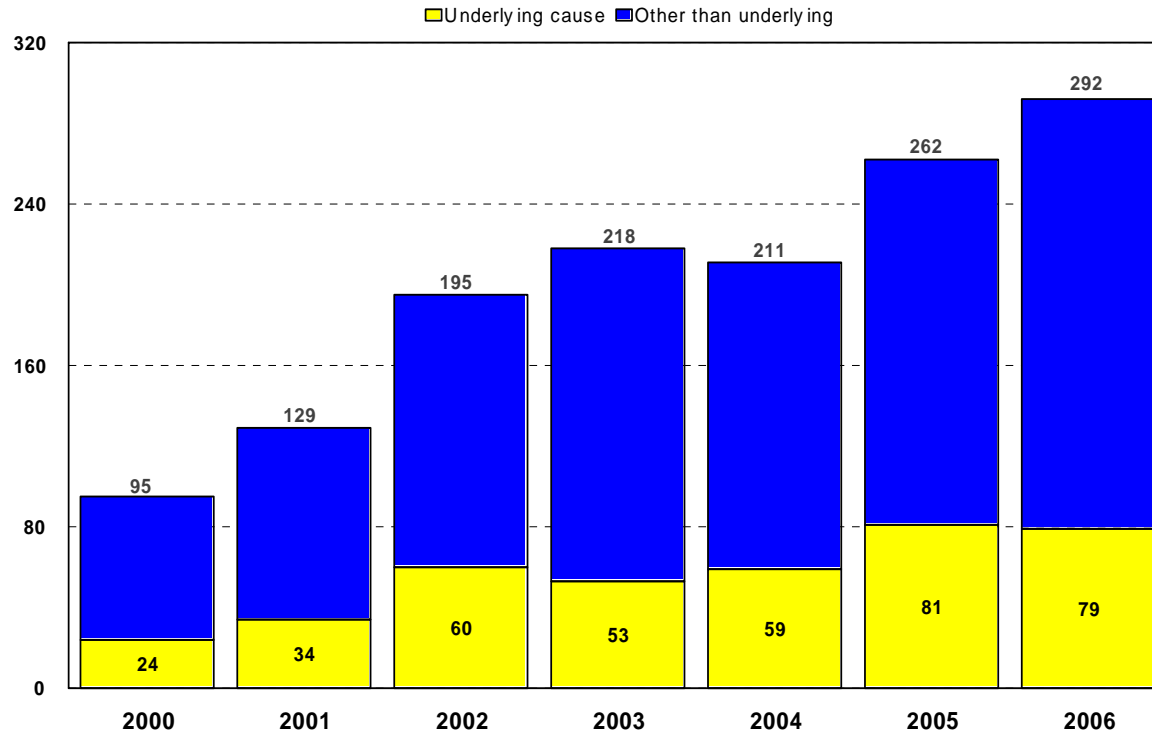
Among the 79 deaths, there were 43 males and 36 females (**Table 4**). Morbid obesity accounted for 56 deaths among White non-Hispanics, 15 deaths among Hispanics or Latinos, four deaths among American Indian residents of Arizona, and also four deaths among Blacks or African Americans. There were no deaths from morbid obesity among Asians or Pacific Islanders.

With the exception of four of the deceased who never worked in their lives, others have represented all walks of life: a homemaker, a manager, a truck driver, a laborer, a plumber, a mechanic, a carpenter and a nurse (**Table 5**).



Note: The causes of death for 1990-1999 are classified by the Ninth Revision of the International Classification of Diseases (ICD-9). The ICD-9 code 278.0 identifies morbid obesity as the underlying cause of death. The causes of death for 2000-2005 are classified by the Tenth Revision (ICD-10). The ICD-10 codes E66.8 (morbid obesity) and E66.9 (obesity, unspecified) are used to identify the deaths from obesity in 2000-2006.

Figure 19
Morbid Obesity as the Underlying Cause of Death and Any Mention of Obesity on Death Certificates, Arizona Residents, 2000-2006



The underlying cause of death is selected from up to 20 causes and conditions entered by the physician on the death certificate. The totality of all these conditions is known as multiple cause of death.

In addition to 79 deaths in 2006 that had morbid obesity assigned as the underlying cause, another 213 deaths had morbid obesity assigned as the other than underlying cause. The sum of these two counts (292, **Figure 19, Table 4**) is the total number of deaths that had any mention of morbid obesity on the 2006 death certificates, 3.1 times as many as in 2000.

Diseases of the circulatory system were recorded as the underlying cause of death in 108 (50.7 percent) of the 213 cases in which morbid obesity was a contributing factor. Diabetes mellitus was the second most frequently recorded as the underlying cause (19 cases or 8.9 percent).

Note: For the purpose of mortality statistics, every death is attributed to one underlying condition. However, more medical information is reported on death certificates than is directly reflected in the underlying causes of death. Those conditions are known as multiple cause of death. In the above figure, morbid obesity was mentioned on 292 death certificates of Arizona residents in 2006, and it was the underlying cause on 79 of them.

TABLE 1
EMERGENCY DEPARTMENT VISITS AND INPATIENT HOSPITALIZATIONS WITH DIAGNOSIS OF MORBID OBESITY
(ICD-9-CM CODE 278.01) BY GENDER, AGE GROUP AND COUNTY OF RESIDENCE AMONG ARIZONA RESIDENTS, 2006

			Total		Inpatient discharge		Emergency room visit	
			Morbid obesity, all mentions	1st listed diagnosis	Morbid obesity, all mentions	1st listed diagnosis	Morbid obesity, all mentions	1st listed diagnosis
Gender	Total		14,220	1,651	12,181	1,635	2,039	16
	Female		9,603	1,286	8,205	1,274	1,398	12
	Male		4,617	365	3,976	361	641	4
Age group	Children <15	Total	75	0	40	0	35	0
		Female	30	0	12	0	18	0
		Male	45	0	28	0	17	0
	Adolescents 15-19	Total	208	14	151	13	57	1
		Female	139	9	101	9	38	0
		Male	69	5	50	4	19	1
	Young adults 20-44	Total	5,575	794	4,429	787	1,146	7
		Female	3,911	623	3,143	619	768	4
		Male	1,664	171	1,286	168	378	3
	Middle-aged adults 45-64	Total	6,240	795	5,585	788	655	7
		Female	4,134	623	3,666	616	468	7
		Male	2,106	172	1,919	172	187	0
	Elderly 65+	Total	2,122	48	1,976	47	146	1
		Female	1,389	31	1,283	30	106	1
		Male	733	17	693	17	40	0
County of residence	Apache	Total	38	4	35	4	3	0
		Female	23	4	21	4	2	0
		Male	15	0	14	0	1	0
	Cochise	Total	302	49	231	47	71	2
		Female	215	40	157	38	58	2
		Male	87	9	74	9	13	0
	Coconino	Total	212	34	194	34	18	0
		Female	159	30	147	30	12	0
		Male	53	4	47	4	6	0
	Gila	Total	118	14	92	14	26	0
		Female	74	12	61	12	13	0
		Male	44	2	31	2	13	0
	Graham	Total	95	15	84	15	11	0
		Female	62	11	55	11	7	0
		Male	33	4	29	4	4	0

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 1
EMERGENCY DEPARTMENT VISITS AND INPATIENT HOSPITALIZATIONS WITH DIAGNOSIS OF MORBID OBESITY
(ICD-9-CM CODE 278.01) BY GENDER, AGE GROUP AND COUNTY OF RESIDENCE AMONG ARIZONA RESIDENTS, 2006 (CONTINUED)

			Total		Inpatient discharge		Emergency room visit	
			Morbid obesity, all mentions	1st listed diagnosis	Morbid obesity, all mentions	1st listed diagnosis	Morbid obesity, all mentions	1st listed diagnosis
	Greenlee	Total	29	5	26	5	3	0
		Female	18	2	16	2	2	0
		Male	11	3	10	3	1	0
	La Paz	Total	52	6	51	6	1	0
		Female	32	5	31	5	1	0
		Male	20	1	20	1	0	0
	Maricopa	Total	7,839	1,044	6,973	1,040	866	4
		Female	5,264	807	4,684	804	580	3
		Male	2,575	237	2,289	236	286	1
	Mohave	Total	402	28	364	27	38	1
		Female	250	23	219	23	31	0
		Male	152	5	145	4	7	1
	Navajo	Total	185	22	170	22	15	0
		Female	138	19	129	19	9	0
		Male	47	3	41	3	6	0
	Pima	Total	2,977	264	2,242	260	735	4
		Female	2,113	208	1,580	204	533	4
		Male	864	56	662	56	202	0
	Pinal	Total	731	66	686	64	45	2
		Female	483	51	463	49	20	2
		Male	248	15	223	15	25	0
	Santa Cruz	Total	73	6	62	6	11	0
		Female	44	4	40	4	4	0
		Male	29	2	22	2	7	0
	Yavapai	Total	514	38	419	38	95	0
		Female	318	31	261	31	57	0
		Male	196	7	158	7	38	0
	Yuma	Total	397	17	318	14	79	3
		Female	241	9	189	8	52	1
		Male	156	8	129	6	27	2
	Unknown	Total	256	39	234	39	22	0
		Female	169	30	152	30	17	0
		Male	87	9	82	9	5	0

*Up to nine diagnoses are coded for each discharge. All mentions include all occurrences of the diagnosis regardless of the order on the medical record.

**The first diagnosis listed on the medical record.

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 2
CHARACTERISTICS OF INPATIENT DISCHARGES FOR MORBID OBESITY (ICD-9-CM 278.01), ARIZONA RESIDENTS, 2000-2006

	2000	2001	2002	2003	2004	2006	2006
Any mention of morbid obesity in one or more of the diagnostic fields on the medical record	4,431	5,900	6,778	9,362	10,603	11,267	12,182
Morbid obesity as first-listed diagnosis	608	1,130	1,347	2,395	2,231	1,760	1,635
GENDER:							
FEMALE	494	911	1,118	1,987	1,826	1,417	1,274
MALE	114	208	229	408	405	343	361
AGE GROUP:							
19 years old or younger	8	14	10	9	17	11	13
20-44 years old	371	691	774	1,277	1,157	892	787
45-64 years old	222	416	545	1,065	1,108	810	788
65 years old or older	7	9	18	44	39	47	47
TYPE OF OBESITY SURGERY PERFORMED:							
High gastric bypass ¹	567	1,011	1,182	2,123	672	85	40
Laparoscopic gastroenterostomy ²	0	0	0	0	320	1,130	1,072
Other gastroenterostomy ³	29	80	76	170	1,092	347	215
Gastric restrictive procedure (gastric band)⁴	0	0	0	0	31	127	203

Note: Based on hospital inpatient discharges from short-stay, non-federal hospitals in Arizona.

¹First-listed ICD-9-CM procedure code 44.31.

²First-listed CD-9 CM procedure code 44.38.

³First listed ICD-9-CM procedure code 44.39.

⁴First-listed ICD-9-CM procedure code 44.95.

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 3
MORBID OBESITY (ICD-9 CODE 278.0) AS THE UNDERLYING CAUSE OF DEATH,
ARIZONA RESIDENTS, 2000-2006

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Obesity as the underlying cause of death:	14	11	19	18	28	30	25	18	25	28
Gender:										
Male	7	7	9	8	15	16	10	9	14	17
Female	7	4	10	10	13	14	15	9	11	11
Age group:										
Children 1-14 years old	0	0	0	0	0	0	0	0	0	0
Adolescents 15-19 years old	0	0	0	0	0	0	0	0	0	1
Young adults 20-44 years old	6	4	8	7	10	7	8	3	13	15
Middle-aged adults 45-64 years old	6	5	5	6	15	15	15	12	8	8
Elderly 65 years old or older	2	2	6	5	3	8	2	3	4	4
Race/ethnicity:										
White non-Hispanic	12	9	12	15	21	24	16	16	18	19
Hispanic or Latino	1	1	5	1	5	5	2	1	5	4
Black or African American	0	1	1	1	2	0	4	1	0	1
American Indian or Alaska Native	1	0	1	1	0	1	3	0	2	4
Asian or Pacific Islander	0	0	0	0	0	0	0	0	0	0

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 3
MORBID OBESITY (ICD-9 CODE 278.0) AS THE UNDERLYING CAUSE OF DEATH ,
ARIZONA RESIDENTS, 1990-1999 (CONTINUED)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
County of residence:										
Apache	0	0	0	0	0	0	0	0	1	2
Cochise	0	0	1	0	0	2	2	0	0	1
Coconino	0	0	0	0	0	1	1	0	0	0
Gila	1	0	0	0	1	0	0	0	0	0
Graham	1	0	0	0	0	1	0	0	0	0
Greenlee	0	0	0	0	0	1	0	0	0	0
Maricopa	6	8	14	12	15	12	14	12	16	16
Mohave	0	0	0	2	2	0	0	0	1	0
Navajo	1	0	0	0	3	1	1	0	0	0
Pima	3	1	1	0	5	5	4	1	4	5
Pinal	0	2	1	2	0	4	0	2	1	0
Santa Cruz	0	0	0	0	0	0	1	0	0	0
Yavapai	1	0	0	0	1	0	0	2	0	3
Yuma	1	0	1	2	0	2	0	0	1	1
La Paz	0	0	1	0	1	1	2	1	1	0
Unknown	0	0	0	0	0	0	0	0	1	2

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 4
MORBID OBESITY (ICD-10 CODES E66.8 AND E66.9) AS THE UNDERLYING CAUSE OF DEATH AND ANY MENTION OF OBESITY ON DEATH CERTIFICATES,
ARIZONA RESIDENTS, 2000-2006

	2000	2001	2002	2003	2004	2006	2006
Any mention of morbid obesity on death certificates	95	129	195	218	211	262	292
Obesity as the underlying cause of death:	24	34	60	53	59	81	79
MORBID OBESITY (ICD-10 CODE E66.8)	21	23	40	35	38	62	57
OBESITY, UNSPECIFIED (ICD-10 CODE E66.9)	5	11	20	18	21	19	22
GENDER:							
MALE	16	22	34	27	34	46	43
Female	8	12	26	26	25	35	36
AGE GROUP:							
Children 1-14 years old	0	0	1	0	0	0	0
Adolescents 15-19 years old	0	0	0	0	1	0	2
Young adults 20-44 years old	8	13	26	18	21	28	28
Middle-aged adults 45-64 years old	13	13	25	26	25	34	32
Elderly 65 years old or older	3	8	8	9	12	19	17
RACE/ETHNICITY:							
White non-Hispanic	17	25	42	40	46	60	56
Hispanic or Latino	4	3	9	6	5	8	15
Black or African American	0	2	2	3	5	5	4
American Indian or Alaska Native	3	4	7	4	3	7	4
Asian or Pacific Islander	0	0	0	0	0	1	0

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 4
MORBID OBESITY (ICD-10 CODES E66.8 AND E66.9) AS THE UNDERLYING CAUSE OF DEATH AND ANY MENTION OF OBESITY ON DEATH CERTIFICATES,
ARIZONA RESIDENTS, 2000-2006 (CONTINUED)

	2000	2001	2002	2003	2004	2006	2006
County of residence:							
Apache	0	0	2	1	0	0	1
Cochise	2	3	4	2	0	2	1
Coconino	1	0	0	0	1	3	5
Gila	0	0	2	1	1	0	0
Graham	0	0	1	0	1	0	0
Greenlee	0	0	0	0	0	0	0
Maricopa	12	23	29	34	39	46	52
Mohave	1	1	1	0	2	4	3
Navajo	0	0	1	0	0	2	12
Pima	7	4	13	4	10	9	2
Pinal	1	1	2	4	3	4	0
Santa Cruz	0	0	0	0	0	0	1
Yavapai	0	1	1	2	1	6	2
Yuma	0	1	4	4	0	5	0
La Paz	0	0	0	0	1	0	0
Unknown	0	0	0	1	0	0	0

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 5
CHARACTERISTICS OF DEATHS FROM MORBID OBESITY (ICD-10 CODES E668, E889) AMONG ARIZONA RESIDENTS IN 2006

1	17	M	White non-Hispanic	E669	COMPLICATIONS OF OBESITY			MUSICIAN
2	19	M	Hispanic or Latino	E668	COMPLICATIONS OF MORBID OBESITY			LABORER
3	22	F	Black or African American	E668	COMPLICATION OF MORBID OBESITY			ATTENDANT
4	23	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			DISABLED
5	23	M	Hispanic or Latino	E668	CONGESTIVE HEART FAILURE	MORBID OBESITY		NEVER WORKED
6	28	M	Hispanic or Latino	E669	CARDIOMYOPATHY (SECONDARY TO OBESITY) AND	PNEUMONIA		PLUMBER
7	31	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			CAREGIVER
8	32	M	White non-Hispanic	E668	ACUTE MI	HYPOXIA	MORBID OBESITY	MERCHANT
9	32	F	White non-Hispanic	E668	MORBID OBESITY			COSMETOLOGIST
10	32	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			PHARMACY TECHNICIAN
11	32	M	Hispanic or Latino	E668	PNEUMONIA WITH RESPIRATORY FAILURE	OBSTRUCTIVE SLEEP APNEA	MORBID OBESITY	OPERATOR
12	33	F	Hispanic or Latino	E668	SEPSIS COMPLICATIONS	GASTRIC BYPASS SURGERY	MORBID OBESITY	HOMEMAKER
13	34	F	White non-Hispanic	E668	CARDIOMEGALY	MORBID OBESITY		SECURITY GAURD
14	36	M	Hispanic or Latino	E668	COMPLICATIONS OF MORBID OBESITY			INSULATOR
15	37	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY PRESUMED			SECRETARY
16	38	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			NEVER WORKED
17	39	M	Hispanic or Latino	E668	COMPLICATIONS ASSOCIATED WITH	MORBID OBESITY		NEVER WORKED
18	39	F	Hispanic or Latino	E669	RIGHT HEART FAILURE	MYOCARDIAL HYPERTROPHY	OBESITY AND HYPERTENSION	EXECUTIVE ASST

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 5
CHARACTERISTICS OF DEATHS FROM MORBID OBESITY (ICD-10 CODES E668, E889) AMONG ARIZONA RESIDENTS IN 2006

19	39	M	Hispanic or Latino	E668	COMPLICATIONS OF MORBID OBESITY			TRUCK DRIVER
20	39	M	White non-Hispanic	E668	SEPTIC SHOCK	SOFT TISSUE NECROSIS OF BACK & BUTTOCKS	SUPER MORBID OBESITY	DRIVER
21	40	M	White non-Hispanic	E669	PROBABLE SUDDEN DEATH	CARDIAC HYPERTROPHY	OBESITY	ELECTRICIAN
22	40	M	Black or African American	E668	COMPLICATIONS OF MORBID OBESITY			DRIVER
23	40	F	Hispanic or Latino	E668	CARDIAC ARRHYTHMIAS	HYPOXEMIA	SEVERE MORBID OBESITY	HOUSEWIFE
24	41	F	White non-Hispanic	E668	MORBID OBESITY			NEVER WORKED
25	42	F	White non-Hispanic	E668	ACUTE CARDIAC FAILURE	MORBID OBESITY		HOMEMAKER
26	43	F	White non-Hispanic	E669	NATURAL CAUSES			CARRIER
27	44	M	Black or African American	E668	COMPLICATIONS OF MORBID OBESITY			SELF EMPLOYED
28	44	M	White non-Hispanic	E668	MORBID OBESITY			CAREGIVER
29	44	M	Black or African American	E668	MASSIVE PULMONARY EMBOLISM	DEEP VEIN THROMBOSIS	PROLONGED BED REST MORBID OBESITY	SECURITY GUARD
30	44	M	White non-Hispanic	E668	RESPIRATORY FAILURE / MORBID OBESITY			ELECTRICIAN
31	45	M	White non-Hispanic	E668	CARDIOPULMONARY ARREST	SEVERE OBSTRUCTIVE SLEEP APNEA	MORBID OBESITY	INVESTOR
32	45	M	White non-Hispanic	E669	OBESITY			ENVIRONMENTAL ENGINEER
33	46	M	White non-Hispanic	E668	HYPERTROPHIC CARDIOMYOPATHY	MORBID OBESITY		WORKER
34	48	M	White non-Hispanic	E669	PULMONARY THROMBOEMBOLI	DEEP VENOUS THROMBOSIS	OBESITY	MECHANIC
35	48	F	Hispanic or Latino	E668	FATAL ARRHYTHMIA	PULMONARY EMBOLIC	SUPER MORBID OBESITY	CUSTOMER SUPPORT

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 5
CHARACTERISTICS OF DEATHS FROM MORBID OBESITY (ICD-10 CODES E668, E889) AMONG ARIZONA RESIDENTS IN 2006

36	48	F	White non-Hispanic	E669	SUDDEN DEATH	MARKED CARDIAC HYPERTROPHY	OBESITY	WAITRESS
37	49	F	White non-Hispanic	E669	CARDIORESPIRATORY ARREST	HYPERTENSION	OBESITY	CUSTOMER SERVICE
38	49	M	White non-Hispanic	E668	MORBID OBESITY	SEIZURE DISORDER, HYPERTENSION	CHRONIC VENOUS STASIS OF LEGS	CORRECTIONS OFFICER
39	49	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			PROJECT MANAGER
40	51	F	White non-Hispanic	E669	CHRONIC LIVER FAILURE	OBESITY FATTY LIVER ALPHA ANTI TRYPSIN DEFICIENCY	CIRRHOSIS	SECRETARY
41	51	M	White non-Hispanic	E669	RESPIRATORY ARREST	SLEEP APNEA	OBESITY	SELF EMPLOYED
42	51	M	White non-Hispanic	E668	RESPIRATORY FAILURE	HYPOVENTILATION SECONDARY TO MORBID OBESITY		CUSTODIAN
43	52	M	White non-Hispanic	E668	RESPIRATORY FAILURE	MORBID OBESITY		CARPENTER
44	52	F	White non-Hispanic	E668	CARDIOPULMONARY ARREST SECONDARY TO SEPTIC SHOCK	SMALL BOWEL GANGRENE WITH HERNIA	HERNIA DUE TO MORBID OBESITY, MULTIPLE ABDOMINAL	ADMINISTRATION CLERK
45	53	F	American Indian or Alaska Native	E668	ARTERIOSCLEROTIC AND HYPERTENSIVE CARDIOVASCULAR DISEASE	MORBID OBESITY, HYPOXIA AND HYPERTENSION		HOMEMAKER
46	53	F	Hispanic or Latino	E668	COMPLICATIONS OF MORBID OBESITY PRESUMED			ASSEMBLER
47	54	F	American Indian or Alaska Native	E668	BACTEREMIA	DECUBITUS ULCER	MORBID OBESITY	INTERVIEWER
48	54	F	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			ADMINISTRATOR
49	55	M	White non-Hispanic	E669	RESPIRATORY FAILURE	COPD / AMPHETAMINE ABUSE	OBSTRUCTIVE SLEEP APNEA OBESITY	AWNING INSTALLER
50	55	M	Hispanic or Latino	E668	ANOXIC ENCEPHALOPATHY	AIRWAY OBSTRUCTION	MORBID OBESITY	AUTOMOTIVE TECHNICIAN

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 5
CHARACTERISTICS OF DEATHS FROM MORBID OBESITY (ICD-10 CODES E668, E889) AMONG ARIZONA RESIDENTS IN 2006

51	56	F	White non-Hispanic	E669	HYPOXIA	OBESITY, HYPOVENTILATION SYNDROME	OBESITY	REGISTERED NURSE
52	56	M	White non-Hispanic	E668	CARDIAC FAILURE	MORBID OBESITY AND HYPERTENSION		SUPERVISOR
53	57	M	White non-Hispanic	E668	MORBID OBESITY AND ARTERIOSCLEROTIC	CARDIOVASCULAR DISEASE		TELEMARKETER
54	57	M	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			PRIVATE 1ST CLASS
55	57	M	White non-Hispanic	E668	MORBID OBESITY			ACCOUNTANT
56	57	M	White non-Hispanic	E668	CHRONIC OBSTRUCTIVE PULMONARY DISEASE	DIABETES CORONARY ARTERY DISEASE	MORBID OBESITY	ELECTRICIAN
57	57	M	American Indian or Alaska Native	E668	MYOCARDIAL INFARCTION	ARTERIOSCLEROTIC CARDIOVASCULAR DISEASE ARSCVD	MORBIDLY OBSESE	HEAVY EQUIPMENT
58	58	M	White non-Hispanic	E668	MI AS A CONSEQUENCE OF ASHD	MORBID OBESITY		DISPATCHER
59	58	F	American Indian or Alaska Native	E669	HYPROXIMIC RESPIRATORY FAILURE	NOSOCOMIAL PNEUMONIA	OBESITY HYPOVENTILATION	LABORATORY SUPERVISOR
60	59	M	White non-Hispanic	E668	COMPLICATIONS OF MORBID OBESITY			SELF EMPLOYED
61	62	F	White non-Hispanic	E669	COMPLICATIONS OF OBESITY			MASSEUSE
62	64	M	White non-Hispanic	E669	PROBABLE PULMONARY EMBOLISM	IMMOBILITY	OBESITY	TRUCK DRIVER
63	65	M	White non-Hispanic	E669	PROBABLE MYOCARDIAL INFARCTION	CORONARY ARTERY DISEASE	OBESITY HTN SMOKING COPD	SUPERINTENDENT
64	66	F	White non-Hispanic	E668	CORONARY ARTERY DISEASE	SEVERE HYPERTENSION	CHRONIC MORBID OBESITY	HOMEMAKER
65	67	M	White non-Hispanic	E669	CARDIAC FAILURE	CHF, LVH, LA, DILATION, MR	OBESITY, HYPOTHYROID, SLEEP APNEA	MAINTENANCE

OBESITY IN ARIZONA: PREVALENCE, HOSPITAL CARE UTILIZATION, MORTALITY

TABLE 5
CHARACTERISTICS OF DEATHS FROM MORBID OBESITY (ICD-10 CODES E668, E889) AMONG ARIZONA RESIDENTS IN 2006

66	67	M	White non-Hispanic	E668	MYOCARDIAL INFARCTION	CONGESTIVE HEART FAILURE CORONARY ARTERY DISEASE	MORBID OBESITY	OWNER OPERATOR
67	69	M	Hispanic or Latino	E668	SEPSIS	ABDOMINAL WALL CELLULITIS	MORBID OBESITY	MAINTENANCE
68	70	F	White non-Hispanic	E669	CORONARY ARTERY DISEASE	DYSLIPIDEMIA AND SMOKING	OBESITY	CASHIER
69	70	M	White non-Hispanic	E669	RESPIRATORY FAILURE	SLEEP APNEA	OBESITY	T SGT
70	73	F	White non-Hispanic	E668	RESPIRATORY FAILURE	MORBID OBESITY		NURSE
71	74	F	White non-Hispanic	E668	CARDIAC ARREST	ATHEROSCLEROTIC HEART DISEASE PATHOLOGIC FRACTURE	MORBID OBESITY, CHRONIC STEROID, MS	INVENTORY CONTRAL
72	76	F	White non-Hispanic	E668	HYPOXEMIA	OBSTRUCTIVE SLEEP APNEA	MORBID OBESITY	HOMEMAKER
73	76	F	White non-Hispanic	E668	RESPIRATORY FAILURE	OBSTRUCTIVE SLEEP APNEA	MORBID OBESITY	HOMEMAKER
74	77	M	Hispanic or Latino	E668	MORBID OBESITY	ARTERIOSCLEROSIS		SELF EMPLOYED
75	77	F	White non-Hispanic	E668	END STAGE CHF	MORBID OBESITY	HTN	HOMEMAKER
76	81	F	White non-Hispanic	E669	PROBABLE PULMONARY EMBOLUS	OBESITY		HOMEMAKER
77	82	M	White non-Hispanic	E668	HYPERCAPNIC RESPIRATORY FAILURE WITH HYPOXEMIC	OBESITY HYPOVENTILATION AND HEART FAILURE		SECURITY GUARD
78	84	F	White non-Hispanic	E668	OBSTRUCTIVE SLEEP APNEA	MORBID OBESITY		SECRETARY
79	85	M	White non-Hispanic	E669	CHRONIC OBSTRUCTIVE LUNG DISEASE	HYPERTENSION	OBESITY	MECHANIST

References

1. Ogden CL, Fryar CD, Carroll MD, Flegal KM. Mean body weight, height, and body mass index, United States 1960–2002. Advance data from vital and health statistics; no 347. Hyattsville, Maryland: National Center for Health Statistics. 2004.
2. Mokdad AH, Bowman BA, Ford ES, Vinicor F, Marks JS, Koplan JP. *The Continuing Epidemics of Obesity and Diabetes in the United States*. JAMA. 2001 Sep 12. 286 (10).
3. U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity. [Rockville, MD]: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General; [2001].
4. Fontaine KR, Redden DT, Ford ES, Wang C, Westfall AO, Allison DB. *Years of Life Lost Due to Obesity*. JAMA. 2003 Jan 8. 289 (2).
5. Must A, Spadano J, Coakley EH, Field AE, Colditz G, Dietz WH. *The Disease Burden Associated With Overweight and Obesity*. JAMA. 1999 Oct 27. 282 (16).
6. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.